

# Microstructural Engineering 2018-19

PBCEC, IIT Kanpur

30-31 March 2019

Day-1		30 <sup>th</sup> March 2019	
<b>Session I Chair: Dr. Anish Upadhyaya (IITK)</b>			
Time	Title of the talk	Speaker	
9:00-9:25	Textures Microstructures And Grain Boundaries	Dr. R. K. Ray (IITK, IEST)	
9:25-9:50	Relating Concurrent Developments in Residual Stress and Microstructure	Dr. I. Samajdar (IITB)	
9:50-10:15	Role of grain boundary character on liquation cracking in an 316-Ti austenitic stainless steel	Dr. V. S. Sarma (IITM)	
10:15-10:40	The relationship between intergranular compatibility and computed texture	Dr. S. Mahesh (IITM)	
<i>Coffee Break</i>			
<b>Session II Chair: Dr. A. K. Singh (IITK)</b>			
11:00-11:25	Some recent research activities pertaining to Titanium alloys, additive manufacturing and machinable glass ceramics: Binding them through one common theme of microstructural evolution	Dr. Shibayan Roy (IIT KGP)	
11:25-11:50	Correlative microscopy - Scope for multi-scale microstructure analysis down to near-atomic resolution	Dr. K. G. Pradeep (IITM)	
11:50-12:15	Machine Learning based approach of Hierarchical Modeling of Deformation	Dr. Alankar Alankar (IITB)	
12:15-12:40	Effect of prior deformation on the melting behavior of aluminum	Dr. K. S. Suresh (IITR)	
<i>Lunch</i>			
13:45-15:15	<b>e-Poster</b>	<b>Chair: Prof. Amit Bhattacharjee (DMRL)</b>	
	Living with Inclusions and Second Phases in Aerospace Materials: Nightmares and Solutions from a Failure Analyst	Suresh Mawatkar (VSSC)	
	Study of Hot Deformation Behaviour of Ti-10V-2Fe-3Al in alpha-beta Phase filed	Vivek K Chandravanshi (DMRL)	
	Understanding of cyclic stress softening in mill annealed Ti-6Al-4V: TEM and TKD characterization	Jyoti Jha (IITB)	

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	Insights into the interactions of $\Sigma 3n$ boundaries in triple junctions in the context of grain boundary engineering	R. Jeyaraam (IITM)
	Precipitation kinetics of HPT processed maraging steels	Kevin Jacob (IITB)
	TBA	Mirtunjay Kumar (IITK)
	Corner Instability in Single Crystalline Thin Film : A Phase Field Study	Miral Verma (IITK)
	Microstructure-mechanical property correlation in additively manufactured (Direct metal laser sintering, DMLS processed) Ti-6Al-4V alloy	Sushmita Sharma (IIT KGP)
	Role of martensite on the deformation behavior of Ti-6Al-4V alloys	K. Naga Chaithanya Kumar (IITR)
	Microstructure-processing-mechanical property correlation for hot pressed Cu-Sn alloy	Biswajit M Patra (IIT KGP)
<b>Session III Chair: Dr. K. Mondal (IITK)</b>		
<b>15:15-15:40</b>	Influence of texture on residual stress anisotropy and failure of aluminium alloys used in aerospace applications	Dr. P. Ramesh Narayanan (VSSC)
<b>15:40-16:05</b>	A thermomechanical Simulation study using Gleeble(R) on the grain refinement in steel.	Dr. D. Chakrabarti (IIT KGP)
<b>Coffee Break</b>		
<b>Session IV Chair: Dr. A. Garg (IITK)</b>		
<b>16:25-16:50</b>	Correlating hot deformation parameters with microstructure evolution during thermomechanical processing and machinability of Inconel 718 alloy	Dr. Sushil Mishra (IITB)
<b>16:50-17:15</b>	Multi-scale Modeling of Fatigue Crack Nucleation in Ti-alloys	Dr. P. Chakraborty (IITK)
<b>17:15-17:40</b>	Insights from micro-scale mechanical tests on fracture behavior of cold drawn pearlite	Dr. J. Balila (IITB)

Workshop Dinner 7:30 pm onwards

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Day-2		31 <sup>st</sup> March 2019	
<b>Session V Chair: Dr. Gouthama (IITK)</b>			
Time	Title of the talk	Speaker	
9:00-9:25	Design of microstructures in medium to low manganese twinning induced plasticity (TWIP) steels	Dr. Satyam Suwas (IISc)	
9:25-9:50	Analysis of Atomic Column Contrast Variation in Image aberration corrected HRTEM Images of Bulk Nanocrystalline Ti alloy	Dr. Arup Dasgupta (IGCAR)	
9:50-10:15	Characterization of irradiated microstructure	Dr. Apu Sarkar (BARC)	
10:15-10:40	Recovery and recrystallisation in cold rolled two-phase steels	Dr. J. P. Gautam (UOH)	
<i>Coffee Break</i>			
<b>Session VI Chair: Dr. Sumit Basu (IITK)</b>			
11:00-11:25	Microstructural Design Pathways for Enhancing Mechanical Properties of High Entropy Alloys	Dr. P. Bhattacharjee (IITH)	
11:25-11:50	TBA	Dr. K. Biswas (IITK)	
11:50-12:15	Study of residual stresses in additively manufactured 304L stainless steel using neutron diffraction measurements and crystal plasticity finite element simulations	Dr. A. Patra (IITB)	
12:15-12:40	On the evolution of microstructure and texture in single phase CoCuFeMnNi high entropy alloy subjected to high pressure torsion	Ms. Reshma Sonkusare (IITK)	
<i>Lunch</i>			
13:45-15:15	<b>e-Poster</b>	<b>Chair: Dr. Apu Sarkar (BARC)</b>	
	Hierarchical microstructure analysis towards correlative assessment of nano-scale features using Transmission Kikuchi Diffraction	Karanam Gururaj (IITM)	
	Change in micro mechanisms of deformation as a function of triaxiality and texture	Vivek Kumar Sahu (IITK)	

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	Multiscale modelling of microstructure evolution in Ni-Al systems	Rupesh Chafle (IITK)
	TBA	Ashok (IIT KGP)
	Texture Weakening in Pure Magnesium during Grain Growth	Deepankar Panda (NITR)
	Study of residual stresses in Zr alloys	Khushahal Thool (IITB)
	TBA	Yazar K U (IISc)
	Orientation-dependent deformation behavior of zinc using nanoindentation	Sarvesha (IITK)
	Effect of precipitates on mechanical and sensitization behavior of FeSi alloy	Prince Setia (IITK)
<b>Session VII Chair: Dr. S. Sangal (IITK)</b>		
15:15-15:40	Microstructural design of high temperature titanium alloys	Dr. Amit Bhattacharjee (DMRL)
15:40-16:05	New insights into the evolution of twin boundaries	Dr. Shashank Shekhar (IITK)
<i>Coffee Break</i>		
<b>Session VIII Chair: Dr. M. Katiyar (IITK)</b>		
16:25-16:50	Rate sensitive behaviour of aluminium alloys	Dr. Manasij Yadava (IITK)
16:50-17:15	Studying the effect of grain boundary structure on carbide precipitation in a Nickel based superalloy	Mr. Sandeep Sahu (IITK)
17:15-17:40	Modelling strain hardening behaviour in face centered cubic materials	Dr. Nilesh Gurao (IITK)

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*Closing Ceremony 17:40-18:00*

*High Tea*

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